Russian Mathematics 2017 vol.61 N1, pages 69-75

Contact statement of mechanical problems of reinforced on a contour sandwich plates with transversally-soft core

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Abstract

© 2017, Allerton Press, Inc.For the sandwich plates and shells with transversally-soft core and carrier layers having on the outer contour of the reinforcing rod, for small deformations, and middle displacements we construct refined geometrically nonlinear theory. This theory allows to describe the process of the subcritical deformation and identify all possible buckling of carrier layers and reinforcing rods. It is based on the introduction as unknown contact forces at the points of interaction mating surface of the outer layers with core and carrier layers and a core with reinforcing rods at all points of the surface of their conjugation to the shell contour. To derive the basic equations of equilibrium, static boundary conditions for the shell and reinforcing rods, as well as conditions of the kinematic coupling of the carrier layers with a core, the carrier layers and a core with reinforcing rods we use previously proposed generalized Lagrange variational principle.

http://dx.doi.org/10.3103/S1066369X1701008X

Keywords

contact stress, Lagrange variational principle, refined beam and core models, sandwich plates and shells, side member,medium bending, transversally-soft core

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